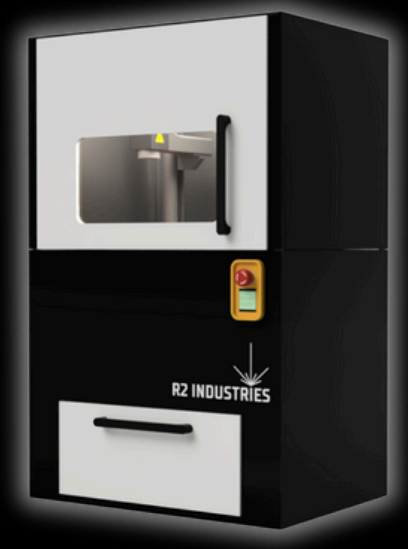
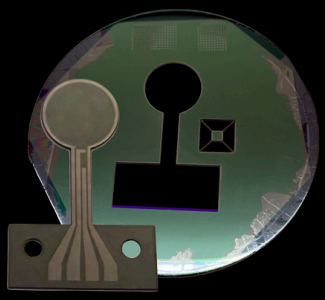
R2 INDUSTRIES

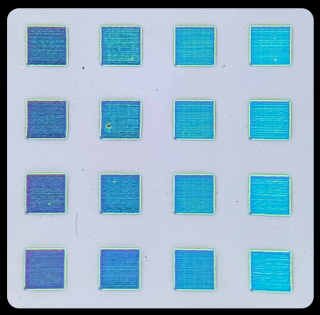
R2 Industries produces American-made, state-of-the-art laser systems for microelectronics manufacturing and R&D. Featuring an advanced picosecond pulsed UV laser, micrometer precision, fast writing speeds, and large writing areas, the versatile RDS instrument combines the functionality of multiple single-purpose fabrication tools and enables groundbreaking new fabrication techniques — ideal for academic labs and cleanrooms, industrial R&D, and low-volume manufacturing.



>>> ETCHING AND PATTERNING

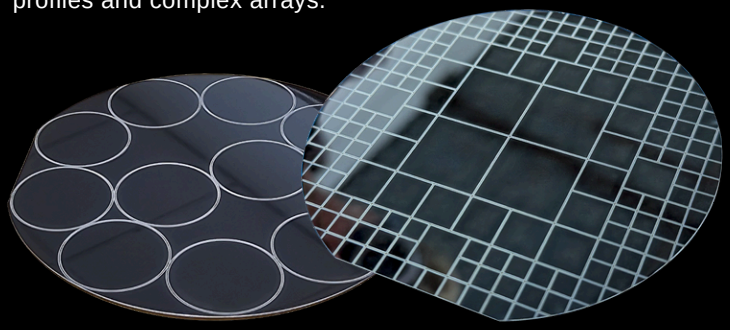
Pattern substrates, dielectrics, and thin metal films with high lateral and depth precision. Replace multi-step dry and wet etching processes with direct-write etching for many applications. Drill precision holes and vias in virtually any material. Or perform conventional direct-write photolithography with a suitable resist.





>>> SUBSTRATE DICING AND RESIZING

The RDS enables dry, zero-contact, high precision dicing and resizing of silicon, sapphire, GaN, GaAs, SiC, diamond, glass, and virtually any other material. Compared to conventional saws, our instruments offer higher reliability, lower operating costs, and lower kerf loss, while accommodating arbitrary die profiles and complex arrays.



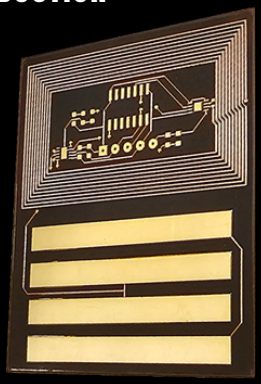
>>> MICROFLUIDICS AND MEMS

Produce a wide range of microfluidic devices in glass, silicon, ceramic, or polymer substrates. Generate 2.5 D structures such as micropillar arrays for advanced applications like deterministic lateral displacement (DLD). Ideal for rapid prototyping and low-volume production.

>>> PRINTED CIRCUIT BOARD PRODUCTION

Rapidly print high-precision circuits on a variety of substrates, including traditional FR4, flexible polyimide, or high frequency ceramics. Generate silkscreen layers and solder masks. Produce multilayer boards in-house with an optional via plating system.

POWERED BY



>>> SPECIFICATIONS

Picosecond pulsed UV laser (355 nm), 5 watt (max)
15 µm spot size, 100 x 100 mm write area
Optional: 2 µm spot size, 7 x 7 mm write area

Linear writing speed: up to 10,000 mm/s
Writing accuracy: < 10 µm
Pulse width: variable, minimum < 15 ps
Pulse repetition rate: variable, 400 kHz to 2 MHz

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